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COOP'S TECHNOLOGY DIGEST

-A Timely Report On The World Of Communications-

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COOP'S TECHNOLOGY DIGEST

JUNE 5, 1996 ◆ VOLUME 96-04-27

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SOME Unfinished Business

CTD for July 1994 (issue 94-07-10) reported on a cable television experiment then being installed in the Wellington suburb of Whitby by TVNZ technical arm BCL. Because of the channels carried (all terrestrially available and off-air received) and the above ground back-fence-line attachment policy being followed, CTD came to the reasoned conclusion the system was more of a "Master Antenna Service" than a true cable TV system.

The Whitby BCL owned "cable" system has been on the market now for approximately one month; asking price: $10,000. The system serves fewer than 50 paying subscribers (all of whom pay a very nominal fee for their enhanced terrestrial reception) and is said to have an "equipment scrap value" not to exceed $15,000. The actual cost of Whitby, for BCL, has never been revealed but was originally believed to be in excess of $100,000 labour and materials.

The New Zealand "cable TV world" has changed remarkably since this experimental system was designed and installed; the Whitby system is now all but surrounded by Telecom cable TV rollout and the competitive-to-Telecom Saturn network rollout is heading into the same area as well. To date neither Telecom nor Saturn has shown a serious interest in purchasing the BCL "experiment."

The only really "interesting" aspect of the system is a rather unusual agreement existing between BCL and Sky Network. Because the cabled region does not receive Sky's terrestrial services directly, BCL was able to negotiate an agreement with Sky that pays a monthly fee to BCL from Sky for each Sky home served through the cable lines. And, in fact, the revenue BCL receives from the Sky connections exceeds the revenue BCL receives for non-Sky reception services. However, because of the small number of homes involved nobody could possibly earn a living (or repay the debt) from the sum of all income. And the system, if mature and serving all potential homes in the region, would in its present state not serve more than 200 homes.

Some non-Telecom and non-Saturn potential buyers have looked at the system with an eye towards making a small investment, upgrading the system to carry some off-satellite signals, and then perhaps peddle it as a more mature and modern system to either Telecom or Saturn at some future date.

At the time of the system's installation BCL was openly interested in pursuing cable television delivery to terrain shadowed areas of Wellington and Auckland. Their current interest has shifted to satellite delivery to shadowed areas. By 1998 we may have an opportunity to purchase quantities of ex-BCL satellite equipment for something approaching "scrap value."

CTD for December 1994 (issue 94-12-13) reported that Star TV, the Asia wide service owned by the Murdoch empire, was expanding into the Pacific and would assist prospective cable TV and SMATV operators with the funding of start-up systems. In the interim, the business plans for this Murdoch service has changed significantly. Star TV continues to provide a 5 channel analogue free to air broadcasting service using AsiaSat 1; a satellite that is not viewable in any of the Pacific except for a narrow strip in northern Australia. The late 1994 plan was to use a number of transponders on then-to-be-launched AsiaSat 2; the satellite subsequently (December 1995) was launched and today operates at 100.7E. The plan was to use the wider reach of AsiaSat 2 to increase the coverage of the Star TV services. During 1995 as the technology of compressed digital video (CDV) matured, the business plan changed. By the fourth quarter of last year Star TV was describing the expanded AsiaSat 2 service as a "Localised service" which would use the expanded programme capability of CDV to transmit programming packages into specific target areas.

As the business plan now exists, the flagship Star European service plans to convert to a 500 TV channel all digital service. They have reserved transponder space for this new all digital service and are planning a September-October (1997) start. The programming packages will actually consist of far fewer than 500 "different" programmes; Star TV has the habit of using a single transponder to carry as many as four different "programme titles" by splitting the day into parts and running certain programme titles only within pre-announced time blocks. Sothe actual number of programme channels will be significantly fewer than 500.

Additionally, programming will be adjusted for time zones to allow eastern European viewers to access programmes that suit the time of day, with the same programmes repeated on a separate group of satellite channels on a time delayed basis for viewers in central and western Europe. Thus we ultimately end up with some number such as 100 actual programme channels available to any single reception point at a stated time of day.

Out of the (still impressive) 100 channel package will come a specific group of programming sources which will be relayed to the AsiaSat 2 (As2) satellite. This group of programming channels will be directed at specific segments of the Asian market. Although the As2 footprint is reasonably universal from the middle east to Japan, and, south to Australia and New Zealand the target area specific programming will not be. Technically, programming for all target areas will be available at any point within the footprint. Star TV intends to control what viewers actually have (conditional) access to through software that addresses each receiver connected to the 'network'. A group of up to 20 programme channels, for example, intended for Japan will only be "authorised" to receivers which have a physical address within Japan. Similarly, receivers in Indonesia will have access only to their regional programming bundle, not those of Japan. Similar regional marketing will cover India, China, and the Philippines. Neither New Zealand nor Australia appear within the target area for any of the programming packages.

Star TV has two entirely different concepts at work. In Europe, they see the market as a "whole" and intend to programme primarily in a homogenised format with all viewers receiving the same programmes (although perhaps at different times to allow for time zone differences). In Asia and northern Pacific, they see the market as a number of unrelated stand alone target areas. To serve each of these target areas there will be a mixture of "universal" (typically English language) programme channels and regional or local programming. For customised regional/local programming, Star TV has been building alliances with established terrestrial broadcasters. These broadcasters will contribute language specific programming channels to help differentiate each regional service. In theory, a person in Japan should have no real interest in the Indonesian service since the same "universal" (typically English) language services will appear in both programme packages and the most appealing local services will be those that come into a home in the local language.

Within this ever enlarging business plan are elements unique to the Murdoch empire. At the same time this expansion is coming and scheduled for 1997, they also plan a similar rollout of a USA national DBS (small dish, Ku band) service in 1997-1998 with partner MCI, as well as a very similar service in South America in partnership with several multinational media and telecommunication firms. A number of the channels will be "branded" with the now well known "Fox" name, two of which are to be an all-news channel (Fox News) aimed squarely at the success of CNN, and an all-sports channel (Fox Sports) aimed at ESPN. Through the world girdling linking of satellites, programmes will be available on a regional basis (limited by the coverage of a specific satellite as in the case of Europe, or by conditional access routines as is the case with AsiaSat 2). However, virtually all of this will originate at Murdoch's Sky facility in London.

The original October 1994 announcement by Star TV's Charles Pollard (CTD 9412, p. 2) was correct to the business plan at the time it was announced. It is no longer current due largely to the rapid development of programme compression techniques using the MPEG-2 format.

The status of the Asia/Pacific service today is as follows:

1) Star TV's Hong Kong uplink facility currently has three of their seven As2 transponders operating. However, the programming in an interim DVB Compliant MPEG format is largely a duplication of pre-existing Star analogue services. Of the three transponders, 2A (3700 vertical) is presently running tests on four programme channels and access to these channels requires a special conditional access receiver manufactured by NTL in only prototype (and very limited quantity) format. Transponder 3A (3740 vertical) is carrying three programme channels in a test mode, and is expected to be closed to "accidental viewing" with the implementation of a conditional access routine at any time. Transponder 7A (3900 vertical) has seven programme channels, of which two are test only and a third is primarily carrying the Star Radio network service which feeds radio stations and cable systems in the Asian region. The four remaining programme channels are at present in free-to-air MPEG-2 although they will convert to a conditional access format sometime before 1997. The programme services presently there to anyone owning an appropriate MPEG-2 DVB Compliant receiver (such as the NTL system 3000) include Star Plus on feed with Japanese subtitling to cable TV systems in Japan, VIVA (a Filipino targeted movie service), BBC World (used in Singapore as well as Australia) and Sky News. The latter originates in London, is the same Sky News service seen throughout Europe in the BSkyB Murdoch network service, but is intended for cable in Australia. It identifies as an Australian service on this particular feed.

None of this can be considered more than an interim use of the AsiaSat 2 transponders held by Murdoch pending the launch in 1997 of the world-wide network.

2) The Star TV equipment funding programme announced in October 1994 is not dead, but it certainly has not matured. The original premise for becoming a part of the equipment distribution scheme was that this would grant the equipment distributor an inside track on accessing programming offered by Star TV. No such connection has developed. The second reason to become a customer of the Star distribution programme was assistance in financing. This has also not developed, at least not outside of Asia proper (we have no proof it has occurred there, either). When first announced, US$50m was promised to fund equipment purchase deferred payments for any cable or SMATV operator who also agreed to carry the Star TV programming package.

3) The original promise included Australia, New Zealand and the Pacific islands area. One by one the Star promotional literature has withdrawn areas in the intervening 20 months. Most recently, the Solomon Islands group was eliminated from the "approved nations" list (SatFACTS #21, p. 2). New Zealand fell into a grey area by mid-1995, was formally struck late in the year.

With New Zealand off the approved country list for programming, and unable to avail itself of the hardware offered on a time deferred payment basis, there is at the end of the trail nothing of major interest here for prospective Kiwi cable (or SMATV) operators.

CTD for February 1995 (issue 95-02-15) reported on the conflicts over MMDS (microwave delivered terrestrial television) holdings and the plan of an American based company (Transworld Telecommunications) to activate as many as 8 channels of television here. As we noted, ownership of the 12 MMDS licences is 66.6% controlled by Telecom and any plan to operate in a television delivery mode (in competition to Sky Network's UHF service) would have to somehow include an accommodation of Telecom. To complicate matters, Telecom has an indirect ownership interest in Sky Networks (CTD 9508; p. 15). Of the 8 Telecom owned MMDS channels, 6 have been on an interim lease that expires next month (July) while 2 others remain on interim leases until 2001. With the six MMDS channels returning to Telecom control, they at least have the technical ability to make use of these frequencies.

Six analogue channels is not a very desirable number of service channels to offer to a public that has 5 via Sky and six more free to air. However, six analogue channels could also support a greater number of digital delivered channels (the engineers do not agree on how many might be accommodated but the number appears to be at least 12 programme channels and perhaps as many as 24). Unfortunately, the equipment required to create a 12 to 24 programme channel all digital service for home delivery of pay television remains slightly beyond reach. Digital format MMDS has been under test in North America (and more recently in the middle east) for up to 8 months with varying results; not all good. The equipment used for these tests has been of prototype manufacture and is not yet commercially available in quantity (as is true with virtually all digital television appliances).

As a practical matter, if Telecom has any serious interest in activating the MMDS channels they are gaining back in July, there is little or no indication of that activity.

CTD for August 1995 (issue 95-07-20) reported on an ambitious plan at Pacific Satellite (Whangaparaoa) to create a private "teleport" which would provide linking services to and from satellites. Owner Bryon Evans was behind the move to establish an independent (of TVNZ, Telecom, Optus) transmit and receive service which he planned to link into the greater Auckland area using a terrestrial microwave network. We reported the effort was attempting to raise, privately, NZ$500,000 to fund the system. Evans was matching any funds raised privately from his own resources.

To update this, Pacific Teleport is now an operating company and the firm has purchased property in an industrial park area on the Whangaparaoa peninsula. There the first of multiple antennas, a 13m ex-USA military dish, is approximately 70% completed in assembly with a target operational date in late July to early August. Also on hand in containers, an identical 13m dish, a 10m and numerous 5 to 7 m antennas. Evans is uncertain precisely who the client users will be but remains optimistic that once he is operational clients will find him and his service. The first dish now under construction does have a limited satellite access range, from approximately 110E to the Intelsat 177W location. (Bryon Evans, Pacific Teleport 09-424-0841).

CTD for April 1995 (issue 95-04-17) explored for the first time the curious activities underway in Australia as the business of pay television was being launched there. We also did major updated reports in CTD for May 1995 (issue 95-05-18), November 1995 (issue 95-09-22), March 1996 (issue 96-02-25) and May (issue 96-03-26). In our May 1996 issue we noted, "Pay television in Australia has discovered new ways to make mistakes costing tens of millions of dollars per month." We reported on a Galaxy rescue mission totalling A$200,000,000 funded by Kerry Packer, The Guinness Peat Group (GPG) and American stockholders UIH and Lenfest which narrowly beat the arrival of the sheriff holding a claim lodged against Galaxy by satellite IRD (receiver) supplier Pace (UK).

The furore continues with new charges and counter charges, lawsuits and cries for federal government assistance weekly. Hopefully somebody participating in this fiasco is keeping a dairy; there is at least one best selling book buried someplace in all of this activity. To update you to late in May:

1) Pace Technology, the UK firm that builds the specialised DGT-400 satellite receivers for the Galaxy service, has lodged a formal complaint seeking payment of back debt allegedly owed. To emphasise the point, 12,000 of the Pace receiver units were forcibly removed from Galaxy by representatives of Pace. To put their best twist on it, Galaxy would subsequently state that 60% of the units were "defective" and were scheduled to be returned to Pace in any event. At the peak of Galaxy growth, they were claiming importation of 30,000 Pace units each month. They now claim to require 7,000 per month to keep up with new customer orders for their satellite delivered service.

Only In Australia?

(Sydney Morning Herald letter to the editor)

"Pay TV seems to be a complicated mess. There are many things worth watching on television and more are promised in the future. Ideally, I want to have the choice to see everything that interests me, live and free.

"If this is not possible, then I am prepared to watch the programs that appeal to me and pay for them. It is hugely wasteful that two companies aspire to provide us all with alternative cabling and difficult for us to choose between one and the other, given that each network has some appealing features.

"It must be technically possible to provide a set-top black box which can meter the chosen program, and to bill the viewer accordingly, be the provider of the particular program be Optus or Foxtel or someone else.

"In the name of competition, or deregulation or microeconomics reform, or just common sense, I would like to see a sensible resolution of the present mess for we would then be able to choose our fancy at the push of a button, whether it be a Fox film, an MGM film, rugby league, the Super 12 or Cricket or CNN or whatever."

A. Pfeifer
Bellevue Hill

Galaxy losses from day to day operations are unknown but by their own admission are large enough to require A$200,000,000 in funding to keep them operating for six months. This simply means they require, in addition to receipts from subscribers, A$1,092,896 each day of the week (CTD 9603, p. 8). Pace alleged a debt of approximately A$11,200,000 when it took back 12,000 receiver units; 5.625% of the total Galaxy raised. It is unlikely Pace's debt was resolved by taking back 12,000 receivers since this would indicate a per unit cost of A$937.50; nearly twice what Galaxy is believed to be paying for the IRDs.

Galaxy shares on the Australian market have jumped around like a drunken Koala on a pogo stick during the past 60 days. On May 7th it sank to 48c, the lowest level since November 1993. And it was not going to get better, soon..

2) Just prior to receiving a A$200m rescue from the consortium that included Kerry Packer, Galaxy had been negotiating with the Murdoch group for similar funding. Murdoch wanted Galaxy to reduce the charge Galaxy makes to Foxtel for 8 channels of programming to which Galaxy holds Australian exclusive rights as a condition to funding the Galaxy operations for a six month period. If Galaxy had done this, Galaxy would have ultimately been further cash-starved in the future by essentially allow Foxtel out of a contract that provides Galaxy with valuable month to month revenues. When Galaxy announced the consortium rescue, the Murdoch group was totally unaware they had a "competitor" in the rescue mission project. To say they were unsettled by losing this opportunity to squeeze Galaxy charges for programming costs would be an understatement.

To punish Galaxy for this indiscretion, Murdoch's News Corp began a series of legal manoeuvres designed to keep Galaxy on the defensive. Galaxy responded by attempting to sell the same programming rights it had previously sold to Foxtel to Optus Vision, the Foxtel cable TV competitor. And this brought Foxtel into the courts with a suit against Galaxy asking for "hundreds of millions of dollars in damages" where it claimed Galaxy was engaging in "double-dealing"; selling the same programming rights to two competitive companies. The slight commercial advantage which Foxtel has had for the last six months in the cable TV rollout has been due largely to their carriage of the Galaxy 8 programme service channels. Naturally Optus (Vision) would like to have access to these same channels to increase their competitive position with Foxtel, and naturally Galaxy would like to sell anything it has in the shop to raise money; big money.

On May 14th Galaxy share prices dropped an additional 20% to 35c; a new all time low, on news of the Foxtel suit.

3) Cable operator Telstra has from the outset of its construction utilised existing underground ducts to spread its hybrid fibre plus coaxial cable network. Competitor Optus Vision had no significant ducting in place (Telstra had inherited its ducts from the previously government owned telephone company) and thus was forced by circumstances to lease overhead "space" from the local (in each area) power utility. Optus has been challenged in court and badly mauled in the political chambers and press for its "degradation of the skyscape" as it has added TV cables to the existing utility poles.

Numerous solutions to the Optus overhead system have been proposed. One of the most recent has been that the government "force" Optus to go to Telstra to rent duct space. This suggestion appeared at almost the same time Telstra (Foxtel) was admitting it had used up most of the spare duct space it had available. The matter ended up in the office of new Communications Minister (Senator) Richard Alston mid-April. Alston understood Telstra was planning to continue their own cable TV expansion by following the controversial Optus system; going overhead.

To justify going overhead, Telstra (Foxtel) pointed at numerous districts in the greater Sydney region and Melbourne where because duct space was available only in some areas, many streets had cable available on one side but not the opposite side. They also produced maps purporting to show that by using the available ducting, essentially every other street in most Melbourne suburbs could be cabled; approximately 50% simply had no duct space for the additional cables.

Telstra further suggested that if it was forced to stay in ducting (which would mean massive street digging and new duct laying to complete areas where no spare ducting is available), it would suffer a 400-500% cost disadvantage over competitor Optus which is continuing to place cable on existing (power) utility poles.

Senator Alston wanted to inject some order into the chaos that has resulted from these competing interests. He did not. On April 18th after a hurried study his office announced that the present system would continue until July 1997 (the magic date when many of the existing rules governing the roll out of cable TV expire ending the present immunity Optus and Foxtel enjoy from planning laws). This was amplified late in April when he said he will not force Optus to place its cables underground, nor will be restrict Telstra from placing their cables overhead; not until July 1997, anyhow. He did offer one suggestion; that if rate payers were really that upset over having a new cable on the poles in front of (or behind) their homes, then the rate payers could anticipate paying for the cost of placing the new cables underground (see sidebar letter, here). Alston: "*In some areas it may be that ratepayers will place such a premium on the aesthetics of the streetscape that they will wish to contribute to the cost of placing all cables, including electrical cables, underground.*" To which an Optus spokesperson added: "*Optus is in the process of building a network which will for the first* *time in Australia's history provide cheaper phone calls. The network will also provide a range of other telecommunications services for the benefit of all Australians. It is not expected that every person will welcome this change but it is nonetheless an undertaking being conducted in a method which is reliable, environmentally sound and in accordance with legislative requirements.*"

The decision by Senator Alston may not be the end of the matter. The NSW Supreme Court ruled late in April that Optus must stop installing overhead cables in Manly, Woollahra, North Sydney and Concord. The (Australian) National Trust immediately urged its members to "*Not subscribe to (any) Optus service and to cancel existing subscriptions until overhead cable issues have been resolved satisfactorily.*" The Local Government Association, which participated in bringing the suit against Optus, hailed the court decision as a victory: "(I) expect the rollout of overhead cables across the nation to come to a grinding halt within a matter of weeks."

Pay For Undergrounding?

(Sydney Morning Herald letter
to the editor)

"It is all very well for us to be told we can pay to have cables buried. Perhaps some can afford the luxury of having a better environment. But how practical is the Communications Minister?

"We don't own the land where the cables go, or the cables. We have no control over their number, their route, their maintenance or the cost of burying them. And we can't stop them coming. Is this another blue sky scheme, Senator Alston?"

Michael Rolfe, Watsons Bay

Telstra has responded with the age-old technique of threatening job cuts if cable construction is reduced. Telstra has 74,000 employees currently; up 6,000 from the pre-cable construction start. Union officials have obtained statements from Telstra that a cut of 5,000 jobs is pending and as many as 30,000 could go over the coming 5 years.

CTD for May 1996 (issue 96-03-26) reported that the recently activated Palapa C1 satellite (113E) has serious operational problems, including a 50% reduction in available (solar collected) operating power. Palapa C2M, previously scheduled for launch in late April, was lifted successfully by Ariane rocket on May 17 and is now undergoing initial in-geostationary orbit testing at 124E.

C2M is very unlikely to remain permanently at 124E as this location is the reserved home of a new Japanese satellite in 1997. The satellite operators have announced a month or longer test plan during which C2M at 124E will carry as many of the present C1 services as practical. Immediately after the launch of C2M, an Indonesian consular official in Australia confirmed the extent of C1 malfunction and added to the previously available knowledge that, "*Four of the* (C-band) *transponders are not functioning properly.*" These would most likely be the four presently in use by TV Brunei (IF1010, Vt), TV Indosair (IF1090, Vt), TV3 (IF1250, Vt), and RTM (IF1330, Vt).

The coverage of C2M from 124E will be an important measurement exercise for Palapa engineers and satellite aficionados but will not represent the true coverage nor signal levels of C2M when it is ultimately moved to one of the three more western locations. For as long as C2M does occupy 124E, users east as far as Samoa and Tonga will be treated to a host of new programming that will, with final bird deployment to the west, disappear from view "over the horizon."

Television testing on C2M could begin at most anytime; test carriers were observed June 2 with the most prominent carrier located at 1150/1160 IF horizontal. C2M had previously been forecast to test at 150.5E; the 124E location is apparently the result of Japanese co-operation allowing Indonesia to utilise this location for a test period. Sister publication SatFACTS will follow the testing of this important satellite closely and provide updates June 15 and July 15.

TECHNOLOGY BYTES

...BITS and BYTES you may have missed in the rush to make a dollar ...

June 05, 1996 / Issue 96-04-27

Satellite TV and Radio

Scientific Atlanta D9223 DVB Compliant MPEG-2 receivers are arriving in New Zealand as CTD goes to press. The first units fall into two categories: Those being shipped in as replacements for existing D9222 MPEG 1.5 units now in use for Country Music Television reception, and, those being shipped in as new for-sale products ostensibly for use with the CMT service here. In fact, most of the new (non-replacement) units are for people who are willing to spend as much as NZ$2,880 to have their hands on what SA advertises as a DVB Compliant receiver to allow them to access the European Bouquet services now on AsiaSat 2 (As2). The new receivers presently are available from Telsat Communications (Palmerston North) The in-exchange units have not actually arrived as we go to press but shipment is reported to be imminent. The replacement model has no direct charge to the D9222 user but in the exchange the owner of the older unit(s) will be required to pay shipping costs to return the originals to a Singapore depot and deal with gst and inward bound shipping costs. The new D9223 units are a significant upgrade from the older style, but their actual operating features were little detailed in advance and only real world use will verify how versatile they really are. The first D9223 to actually appear in New Zealand apparently arrived May 23 to Bloomberg Financial in Wellington. Bloomberg's office there will be equipped shortly with the PAS-2 Bloomberg Financial News broadcast channel (which is currently carried on cable TV in Australia). CTD received a unit on May 31st and here is what we find at first blush: The receiver will NOT tune in DVB Compliant MPEG-2 signals as it comes out of the box. That is not good news. Further, to receive DVB Compliant signals requires a careful step by step procedure NOT discussed in the manual (we obtained instructions after calling a Canadian help-line number but because of our deadline cannot advise you here that this procedure actually works). And once you have done this you have access, we were told, to only one programme channel at a time, not the full universe of programmes that the European Bouquet, for example, provides. To "change" programme channels requires a new set of hand-inserted instructions to the receiver. It is unlikely this receiver as presently configured will be satisfactory to most satellite users seeking DVB Compliant operation in the Pacific; further report in SatFACTS for June 15.

Ministry of Education distance learning trial is now operational at 14 remote New Zealand school sites (example: Hokianga) using 2mb/s data stream leased through TVNZ and BCL on Intelsat 180 satellite. Contractor Rock Communications (Wellington) installed 4 of the Patriot solid 3.1m dishes and 10 Unimesh 3m antennas to receive the special trial MPEG service using NTL 3000 receivers. Because the Intelsat 180 satellite is in inclined orbit, and there was no budget allowance for inclined orbit tracking of the satellite, the contractor visits each site at least once every ten days to reposition the dish so it will be "on the bird" during the 30 minute (per school day) transmission. That contractor charges for thrice monthly visits to each school for antenna repositioning (to continue for balance of this year) is less expensive than a typically $1,000-cost inclined orbit tracking package may be open to some debate. Purpose of the trial is to evaluate how satellite delivered television can increase remote school student interest in and appreciation of non-English languages. A similar wire-line project is also underway in metropolitan regions.

Two new analogue regulars for AsiaSat 2 began running late in May. Transponder 3B (horizontal at 3720/ IF 1430, audio 6.6) features Mandarin movies, sports, news from China. Transponder 6B (horizontal at 3840/ IF 1310, audio 6.6) has movies, plays, sitcoms and sports in Mandarin. Both appear to be CCTV (China Central Television) national channels designed for internal viewing inside China. Reception quality is as good as the best of the previous As2 analogue channels; i.e., under 3m dishes in New Zealand.

PROGRAMME ASSIGNMENTS - SYLMAR MPEG-2 ON 3901 MHz (1249 IF)

D9223 receivers are set up as follows: Band - "C"; L-band frequency - 1249 (MHz); FEC rate - 3/4; Symbol Rate - 30.800 (Ms/s), on horizontal polarisation. Programme channels commonly in use are: (1) CMT, (2) PAS-2 colour bars (sports feeds, CBS feeds), (3) PAS-2 colour bars (occasional feeds); (4) BBC World (audio only on left hand channel); (5) ESPN-2; (6) Bloomberg Financial Service(s).

COMPARISON - AUSTRALIAN PAY TV SERVICES

Service Name	GALAXY	OPTUS VISION	Foxtel
Basic Channels	14 TV, 6 radio via satellite 15 TV via MMDS	23 (including 5 free to air)	26 (including 5 free to air)
Installation fee	$199.00	$29.95	$19.95
Basic Package	$49.95 monthly	$25.00 monthly	$39.95 monthly
Premium 1	+ $6.95 (World movies)	$34.00 (adds movies, or, sports)	+$6.95 (world movies)
Premium 2		$39.95 (movies & sports)	

AsiaSat 2, now known to have serious Ku band problems effecting Star TV and Chinese aspirations there, may also have a C-band "linearity" defect as well. Martin Marietta built the satellite now operating at 100.7E (latest position co-ordinates according to NASA). A number of observers across Australia and New Zealand question why the European Bouquet and Star TV transponders, operating MPEG-2, have such different Bit Error Rate to signal level (C/NR) results than PAS-2 transponders using the same MPEG-2 format. In a nutshell, it appears to take far more signal (up to 6 dB more) from AsiaSat 2 to produce the same BER as it does from PAS-2.

Ariane launch of Palapa C2M satellite May 17th was carried live by three Indonesian TV networks, all covering New Zealand and the (south) Pacific via C1 satellite. Countdown ran a few minutes late but the satellite executed lift-off and followed trajectory perfectly. Next activity: Testing from 124E. Commentators on telecast from French Guyana sat in front of C2M coverage map which pointedly included New Zealand within the prime footprint region, as well as the eastern 1/3rd of Australia.

German firm Zehnder GmbH is now shipping their new Orbiscan Plus self aligning and satellite tracking vehicular satellite receiving system. A 40cm antenna enclosed in a weathertight dome is mounted on top of vehicle (car, truck, boat, even an aeroplane!) and the dish following instructions from the companion receiver actually tracks the geostationary satellite location even as the vehicle twists and turns along rugged rural terrain. Tests reported in German publication Telesatellit give the package extremely high marks for its ability to stay locked onto (Ku band) satellite even in difficult terrain. The entire system operates on 6-30vdc so any common vehicle battery system is suitable. To discourage theft of the top of vehicle antenna, the manufacturer supplies a label that reads "Water Storage" (in German or any other common language) but as Telesatellit observes, "*We only hope the thief is not after a water storage tank as well!*"

Five Star hotels not equipped with a motor driven satellite dish and the equipment necessary to access a variety of satellites and transmission formats are increasingly disadvantaged. Sydney based Global Vision (fax 61-2-9665-7756) is now routinely interconnecting such hotels for international conferences, sales meetings, advertising and promotional group meetings using satellite transponders largely provided by PanAmSat on a world-wide basis. The Global Vision "network" has grown to 32 cities in 16 countries stretching from Pakistan to Korea and throughout Australia. Surprisingly, New Zealand hotels have not become regular partners in the service. Three trial dish systems were shipped to NZ last June but only limited activity followed.

BBC World Service (radio) is using AsiaSat 2 to distribute digital format transmissions in 13 languages to short-wave and medium wave transmitters throughout Asia. The digital platform will support as many as 15 stereo (or 30 mono) radio service channels simultaneously.

BSkyB profits rose 45% in the third quarter over one year ago with paying subscribers now numbering 5.35 million; a gain of 800,000 homes in a year. BSkyB claims 1 home in 5 in the UK now has access to the multiple channel service. BSkyB was, however, the bright spot in the most recent Murdoch empire financial report. Murdoch's Star TV (Asia) continues to mount "big losses"; it expects to lose as much as US$90m in the current fiscal year. Murdoch's partnership arrangement with MCI in North America for DTH now has a name; "ASkyB" for American Sky Broadcasting.

UK home satellite system growth in 1995: 248,000 new home systems or a 27.2% rise over 1994.

Indovision subscription pay TV service decoders, for HBO Asia/TNT+Cartoons/Discovery/ESPN, has become hot seller in Australian rural areas and in many Pacific Island countries north of New Zealand following stabilisation of services on Palapa C1 satellite. There have been some technical glitches: Indovision decoder requires unfiltered, unclamped baseband video (see SatFACTS for May 15, p. 6) and a number of receivers that

5 YEAR GROWTH OF WORLD SATELLITES

Year	Number of commercial traffic satellites	Number of C/Ku transponders available	Number of private DTH satellite dishes	World entities that own satellites
'91	59	1,848	8 million	25
'95	145	2,771	30 million	34
% change 4 years	245.7%	149.9%	375%	136%

apparently claim to have such an output available for decoder connection require some modifications. Australian firm AV-COMM Pty Ltd, a major distributor of home satellite equipment, has done a hurried re-engineering for its popular Dynalink 400 satellite receiver after buyers found it would not work with the Indovision decoder. AV-COMM has created a small parts and wiring change that now allows this receiver to be used with the CDE-2000 decoder and is distributing full instructions upon request (AV-COMM, fax 61-2-9949-7095).

Indostar 1 S-band satellite scheduled for launch at end of this year will go to 106.1E according to Indonesian sources (SatFACTS May 15; p. 7). Satellite will use 5 to 1 digital compression with two of the transponders reserved for audio only digital transmissions. Satellite is being built by Defense Systems Incorporated (USA).

Measat 1 located at 91.5E is scheduled to begin commercial operations in July. MPEG-2 service will provide up to 20 DTH programme channels on Ku with plans to market the service outside of Malaysia in the Philippines and southern India. Measat-2 is scheduled to be collocated (doubling the channel capacity) by the end of this year. C-band will be used primarily for narrowband applications although RTM and TV3, currently using Palapa C1 at 113E, will switch to Measat C-band for their national networking.

Israel's parliament is debating legislation that would make it illegal for Israeli firms to advertise on foreign satellite networks. Concern has risen because Russian immigrants to Israel are now heavy watchers (60% tune in for more than 2 hours a day) to satellite delivered OITV service. The Russian TV service charges US$950 for a minute of advertising time, approximately 1/10th the amount charged by the Israeli terrestrial TV networks. More than 50 firms are regular advertisers on the channel.

Auckland Institute of Technology (AIT) is latest New Zealand school to add satellite dish equipment; a 3.7 and 5m pair of dishes purchased on the used equipment market.

US Congress considering bill to fund "educational satellite" to be used exclusively for distance learning. Severe shortage of available transponders in North America, escalating cost for transponder rental, has frozen low budget educational projects out of running. Bill would provide funds to build and launch satellite', has major backing from rural area educators and Congressmen.

Comsat Labs has demonstrated equipment that can transport up to 14 MPEG-2 video channels on a single 36 MHz wide transponder. Previous systems have been limited to between 6 and 10 programme channels within a single transponder. PanAmSat recently demonstrated the transmission of 8 programme channels through a single 36 MHz bandwidth transponder using their PAS-3 at 43W.

Intelsat is leading effort to create single world-wide digital "standard" for use in uplinking news and sport programming feeds via its own satellites. In major show and tell forum held in Washington (DC) late in May, Intelsat invited 12 MPEG-2 equipment suppliers to provide equipment for inter-compatibility testing. Of 12

HAZARDOUS DUTY

Since the launch of Sputnik 1 in 1959, there has been an ever increasing quantity of "space debris" circling the earth. Every satellite launch leaves behind spent fuel containers, upper stage rocket configurations, and a sizeable quantity of "small" parts that started out at launch time as amalgamated larger parts. The United States Space Command routinely attempts to keep track of all of this debris (they need to know this to steer the Space Shuttle around larger parts) and their "Debris Catalogue" is the bible of firms operating "out there." For example, there are in excess 7,200 pieces of debris that weigh more than 2,000 pounds each. Can you imagine being run down by something that big travelling several thousand miles per hour? And, there are as many as 20,000 additional pieces at least as large as a basketball. The cataloguing (how big, what orbit trajectory, what speed, will it eventually come back into the atmosphere and if yes, when and where?) is effective down to debris pieces 1cm in diameter; still larger than a 38 calibre blunt noise bullet. There are in excess of 100,000 to this point and smaller than that it is anyone's guess. The UN proposes formation of an international debris data bank and some are suggesting it will be the responsibility of space users to clean up after themselves; perhaps "**Deposit Litter Here**" bins in space?

systems on hand, SA was found to be compatible (after on-site engineering readjustments) with five different uplink systems simulated while Compress Labs was incompatible with all but its own uplink system.

Discovery Channel Asia, in B-Mac format on PAS-2, changed from full to half transponder format May 21st and on May 24th reduced their transponder power by 3dB. They will now be sharing the transponder with a second analogue user. Discovery had advised cable affiliates in January of plans to convert from B-Mac to General Instrument Digicipher 2. This plan has now been changed; they will utilise Scientific Atlanta MPEG-2 DVB Compliant (with conditional access) for their PAS-2 service but no earlier than August. Had they stayed with the unique GI format, their affiliates would have required a one-off receiver for continued service. The Scientific Atlanta PowerVu format, however, is now the accepted standard for PanAmSat transmissions in this region of the world. The only other GI format MPEG user on PAS-2 presently is The Filipino Channel which pioneered MPEG on PAS-2 early in 1995. The new centre frequency for Discovery is 3776/ IF 1374, horizontal polarisation.

ESPN, one of several US programmers that had been transmitting their programmes in free to air analogue format on PAS-4 satellite, has encrypted using standard B-Mac they use elsewhere in Asia and Pacific. Most programmers have operated for six months plus FTA as means of "salting" the India cable TV industry, attracting viewers to their programmes. Now the sales effort begins; will the Indians be willing to pay for what they have had, until now, free of charge?

Trade association SPACE Pacific launches Satellite TV Technology Correspondence Course this month. Project, a joint effort of SPACE and world renown author and teacher Mark Long, will be distributed to SPACE members and member firms in the Pacific region. Course includes detailed study book, correspondence course videotape keyed to the teaching chapters, four exams with one on one tutoring to be supplied by Mark Long. Successful completion of the course will result in the award of a certificate to participants. As a home study course, each participant establishes his/her own progress schedule and will be sold at NZ$650/A$600/US$394.

Darwin area satellite launch facility backer Space Transportation Systems of Australia has received the backing of Ucom, a subsidiary of Thai Satellite Communications. The Thai company will invest US$100m in the billion dollar project for a 10% stake. STS hopes to gain launch contracts for some of the 66 satellite Motorola backed Iridium project. Related: The Australian Space Office is negotiating with Russian Cosmos Group for the design of low earth orbit (LEO) launch vehicles to be used at the STS facility. The liquid fuelled rockets would be assembled in Australia to Russian design specifications and be capable of carrying up to 1,000kg of satellite load into LEO.

Digital TV and Radio

Washington (DC) television station WRC, owned by NBC network, will be first commercial station in USA to commence HDTV. Separately, Washington public broadcast station WETA will be first educational station to "go digital." Both stations plan launch of digital broadcasting before end of this year. WRC was seventh US television station to commence commercial operations (1946) and has been used extensively by private and government researchers over past 50 years as test bed for new innovations in television broadcasting.

Conversion of (US) analogue TV stations to broadcasting in HDTV will run US$0.76 - 1.4m; if the station adds local origination in HDTV, US$2m perhaps spread over 6 years. Phases: (1) conversion to HDTV pass through of network feeds, (2) insertion of local commercial messages, (3) playback of non-network, syndicated material, (4) complete plant conversion to HDTV, (5) local news gathering in HDTV.

UNTANGLING NTL - TWO

CTD 9603 (p. 13) pondered how the privatisation of NTL (once a significant part of the UK's IBA) would impact the many ongoing digital projects underway when NTL became Digi-Media Vision, an arm of the News Corp Murdoch empire. DMV is contract bound to complete work it had begun prior to Murdoch on the promising OFDM method of transmitting digital terrestrial television (DTT). DTT infrastructure is scheduled to roll out sometime in 1997. DMV is also contract bound to complete the work it has begun with digital audio broadcasting (see separate update, here) and is on schedule to expand DAB to the majority of the UK over the coming 24 months. Recently, DMV formed an alliance with satellite operator Orion Atlantic to bundle (using NTL technology based upon the NTL 3000 series receivers) cable TV programming for distribution throughout Europe. Within this agreement London Channel 1 and a new performing arts channel are now distributed via Ku satellite. And somehow in the midst of this activity NTL is responsible for the BSkyB transition to 500 MPEG digital TV channels by late in 1997, and the construction and activation of England's new Channel 5 system by January 1 (1997).

NTL has begun world's first commercial operation of digital audio broadcasts using recycled 405 line TV transmission system at Croydon, South London. Transmitter operates on 222.064 MHz, carries separate audio data streams for seven radio station services. Ahead - expansion of service to cover more than 80% of UK by end of 1997.

Wiesbaden, Germany CEPT conference has begun process of establishing frequency spectrum for digital audio broadcasting throughout Europe. Most European countries plan to use band III (typically between 220 and 240 MHz) for national distribution and band L (1,452-1,467.5 MHz) for local services. Denmark, France (band L only), Germany, Sweden, Switzerland and the UK have signed on to the frequency plan to date.

Satellite DAB allocations appear to be headed off in regional directions. There is at least preliminary agreement that certain downlink bands will be used by digital audio broadcasters in various world segments; unlike satellite TV, there is little uniformity beyond regional agreements. Amongst those staking their own turf plans: DAB within the 1.5 GHz (L band) in Europe, Africa, the Americas (minus the USA), Australasia, some parts of SE Asia and Mongolia (!). Within the USA and Alaska 2.3 GHz. In Russian, China and Japan 2.6 GHz. India is planning to use 1.5, 2.3 and 2.6 GHz.

Sweden has announced creation of a national all-digital multi programme channel TV service to be operational in 2001. Substantial funding for the new service will come from the government.

British engineering study forecasts that rollout of terrestrial digital TV service in UK to start in 1997 will provide between 13 and 25 new programme channels for lower 65% of UK, 7 to 15 new channels in northern England and southern Scotland diminishing to 5 channels in the north of Scotland. Differences in service availability is primarily a function of terrestrial transmission costs although there is also a significant (UHF) spectrum shortage that further complicates finding transmission room for digital TV.

Consumer Electronics

Uniden (NZ) Ltd., consumer electronics supplier, has done "soft launch" of home satellite TV reception equipment packages during just completed New Zealand consumer appliance annual conference, held in Fiji. An estimated 450 attendees attended the conference. Uniden has trio of receivers (including two models with built-in antenna positioner circuitry), will supply Unimesh/Uniden 3.7 metre satellite dish, Chaparral Micropak LNB and feedhorn and Venture Maxi 24" 8500 series antenna drive unit. Initial emphasis is on equipping target of 100 retail outlets in NZ with satellite dish systems. Uniden believes the deluxe package system (which features their highly popular European model SQ590E receiver) will retail for $5 to 6,000 installed to NZ consumers. Company brings to home satellite industry something lacking to date: Consumer recognition of "brand name" which Uniden believes will be a major factor in success of home TVRO here. Package will be installed in metropolitan areas (Auckland, Wellington) by contract dish installation firms; elsewhere by retailers. Uniden is also offering retailers an opportunity for certificated training course to bring personnel into the space-age world of home dish satellite TV. Uniden began advertising satellite TV packages in trade publications during May.

Christchurch court case involving citizen's right to install 3m satellite dish could be precursor of similar difficult suits across New Zealand. Many cities have local regulations, built upon Resource Management Act foundation, restricting satellite dish sizes to 1m or less. Christchurch case is one where Japanese family installed 3m dish to receive NHK television broadcasts from PanAmSat PAS-2 satellite, ran afoul of local ordinance. Family failed to obtain a building permit (as required by city regulations) and significant opposition group described as "greenies" brought matter to attention of city. Two similar cases were headed for court until (Japanese) families agreed to lower their dishes to ground level thereby reducing or eliminating "visual pollution" of antennas. Case before court included less than harmonious references to Japanese family not being willing to adapt to "New Zealand culture," their failure to "follow city codes" and allegations the family has functioned in "consular mode because of their heritage." Judge took case under advisement for 15 working days, expects to issue decision sometime around June 10. If family loses, dish comes down. If family wins, Christchurch enforcement of 1m dish size limit will erode. Either way, look for an appeal.

US FCC has moved to pre-empt local zoning regulations which restrict or prohibit installation of satellite dishes. FCC ten years ago adopted "least oppressive" ruling seeking to push city zoning boards and property developers to accommodate installation of satellite antennas. This has worked poorly if at all resulting in significant areas of US where installing a satellite dish is impossible or the bureaucracy path costs as much or more than the actual equipment. New ruling would "remove all public and private (developer) restrictions that impair outdoor TV antennas" whether they are used for terrestrial or satellite reception. FCC ruling being considered would allow restrictions "only for clearly defined health or safety objectives" and end ban on antennas "for aesthetic reasons."

Farm Equipment News, distributed by NZ Rural Press to several hundred thousand rural New Zealand homes, ran two page feature on advantages of home satellite systems in May 13 (1996) issue. Story featured detailed report on the basic equipment required, provided some sourcing and was generally upbeat.

Philips Consumer Products had 31% drop in net income and this range of products lost US$31m in first quarter of year against US$98m profit in 1995. Firm plans two major products designed for Internet users in last half of this year, early 1997: Multimedia Access Terminal will list for more than US$1,000 and include software for Internet browsing, videophone, caller ID verification. A second Web Browser to sell in range of US$300-500 will be on the market in time for Christmas but is being built for firm by an outside source. Long awaited Philips "ImageLock" ghost-canceller is set to start marketing in seven major US cities at US$200, this month. Firm has also dropped out of Camcorder business citing continued price erosion; most recent Philips/Magnavox branded camcorders have been sourced from Matsushita and LG Electronics.

Thomson Consumer Electronics will take RCA and GE brands of DBS (satellite receivers and antennas) world-wide including major push in Asia. Asian market equipment packages are to be assembled in Indonesia using "kits" brought in from USA. First Asian receivers will be utilised with Indovision's new S-band DBS project (see SatFACTS May 15, 1996; p. 7 ["About Indostar"]) which is a joint project with News Corp.

Sony has cut price of its Playstation consumer game system to US$199 (a $100 drop) and this has prompted Sega to drop price of Saturn to US$199 as well. Sony is coming off just released annual financial report showing 15.1% sales growth in year ending March 31. Conversely, Sega reports 17.7% decline in net income for fiscal year ending March 31.

Apple has laid off 20% of work force (2,800 jobs lost) and in most recent quarter ending March 29th posted record US$740m loss.

Nokia, after announcing it would stop TV and related consumer electronic production, may reconsider. Firm reports serious negotiations with three separate "world-class" manufacturers, one of which would continue operating present plant in Finland.

LG Electronics has opened colour TV assembly facility in Pyongyang, North Korea; first in that country. Units are assembled from parts kits supplied by LG South Korea; expectations are for 20,000 TVs to be assembled this year, doubling in 1997.

D-VHS (digital video recording on tape) format has been re-configured slightly as an "industry standard" by consortium of JVC, Hitachi, Matsushita and Philips. Using S-VHS tape format, recorders will carry 5 hour recording capability at 31.7 gigabit capacity, up to 7 hours at 44.4Gb. Expected market appearance of new D-VHS records is now "first quarter 1997" with target pricing approximately US$300 above similar featured VHS analogue models. Detailed specs available on JVC World Wide Web site (http://www.jvc-victor.co.jp/dvhs.html).

Hitachi will produce combination TV/PC systems in 27" and 60" models by October (CTD 9603, p. 18). The 27" model is a halfway product, has ability to function as PC monitor but no real other PC features. Larger 60" model will have fully functional state-of-the-art PC and include Web Browsing feature; price near US$7,000.

ViewCall America (Norcross, Georgia) is showing production models of a US$300 Web Browser which it plans to have in retail distribution by August. Unit provides Internet access, has accessory IR connected remote keyboard for e-mail creation.

PC sales in US, against predictions of maturing market, shot ahead nearly 19% in first quarter of year. Downside: Apple sales fell by 22% in same period, offset by Compaq 40% growth, Hewlett Packard 132%.

DVD settlement of contentious copyright protection issues remains uncertain at press-time. Software (movie producer) and hardware suppliers are less certain the industry will launch during current calendar year. Until movie owners feel comfortable with copyright protection systems and have promise of legislation at least in US to protect their products, they will not release movies on digital video disc.

Cable/Fibre/MMDS/Pay TV

Australian based The Value Channel, a home shopping service carried on Australian cable, is going international this month. TVC will be distributed free to air via PAS-2 in NTSC format initially (because Taiwan, Filipino, Japanese cable operators use this format) , will add PAL format transmission via AsiaSat 2 in July or August. The channel follows established North American and European marketing techniques: There is no charge for cable operators to carry the service, instead the cable firm will actually share in the revenues from orders originating within its cable system coverage area.

TVNZ has ended its planning for a three channel satellite delivered cable TV programming service (CTD 9602, p.9). The national network had originally planned to deliver to cable systems in Australia, New Zealand and the Pacific a trio of programme channels covering travel, outdoor activities and cooking. The original plan was for a July 1996 start, which slid when it became apparent the satellite of choice (Intelsat's replacement at 180E) would be delayed in operation for as long as five months (the replacement for I180 is now not scheduled to be operational before January 1997). Major suppliers in New Zealand and overseas were involved in planning the MPEG-2 DVB Compliant service platform which was to have provided 3 channels in two time zone feeds; one for New Zealand and the islands directly north,. the second two hours delayed for eastern Australia. The project is not totally dead, just taken out of the "active stream" until further notice.

UIH's soft announcement of a 10 channel American/European programming package to be delivered into the Pacific via Intelsat satellite later this year is still "soft" with 7 of 10 programmers now on-dotted-line (CTD 9602, p. 8). Service, to be sold to cable operators at US$3.50 per cable home for all ten channels, is under name AustralAsian Programming Venture (APV). UIH must have distribution contracts within Australian cable TV industry to make this venture worthwhile and increasingly the problems there are mounting. While the US$3.50 for ten channels, delivered to a cable headend already in time shifted and PAL format, is attractive enough, the dollar crunch within the Australian cable industry may make it uneconomical there. And without Australia participation the project has only a small chance of success. As a backup, APV hopes to be able to sell its 10 channel package to Galaxy in Australia for distribution via satellite after July 1, 1997. UIH has recently gone to the public to sell US$200m in senior discount notes due in 2006 to fund its expansion plans in the Pacific region. This also includes their commitment to continued funding for the Saturn cable television project in NZ. In peddling the senior discount debentures, UIH makes much of their involvement in the CETV development of MMDS and cable outside of the major Australian metropolitan areas. CETV holds MMDS licences in the eastern 2/3 of Australia and plans to introduce direct to home MMDS MPEG digital service in mid 1998. UIH Australia /Pacific had consolidated net operating losses of US$17m in fiscal 1995. Merrill Lynch is handling placement of the notes. If the project does go ahead, the current plan is to bundle 5 programme channels initially on each of two 45 mb/s data streams transmitted on parallel (dual) 36 MHz transponders. A sample coverage map provided by UIH shows a 36 dBw contour hemi-beam on Intelsat 801 at 174E covering all of New Zealand, Australia and as far north as North Korea, west to Malaysia and all points in between. To our immediate north, the 36 dBw contour closely hugs the 180 parallel and island countries east of that point would require antennas larger than the nominal 3m size required within the 36 dBw region.

NBC Asia has sent mailers to some quantity of New Zealand motellers offering to supply them with a pair of Pace DVR-500 satellite MPEG-2 IRDs free of charge. All that NBC asks is that the motel agree to pay US$0.06 per occupied room per night for use of NBC Asia and the companion CNBC service. For most motellers, this will require purchase of a satellite dish and companion LNB, cables as well as modulators for the service channels and integration of the two NBC satellite delivered (PAS-2) programme channels. The offer is stirring up significant interest but to fault NBC, they should have tied it to some form of support for the balance of the necessary antenna system within New Zealand. Cable systems are being asked to pay US$0.60 per month for each cable home for the same two services.

Optus Vision (Australia) promising viewers (the) Disney Channel before the 1st of July. The service is available in some portions of Asia through PanAmSat PAS-4 but previously not in the Pacific. Also on promise: The Music Channel, an Australian pop music channel, sometime this month.

News Corp will offer cable TV operators $10 per cable subscriber if the cable company will carry news Fox News channel, in USA. One-off payment is inducement to gain channel position within North American cable systems. Cable pundits in USA believe that for a cable service to be viable, financially, it must reach minimum of 15 million (US) homes. At that level of penetration, News Corp will spend US$150,000,000 to gain "dial position." It has an uphill fight; CNN is the news brand of choice and there are numerous lesser known national and regional news channel services as well all fighting for dial space.

VCRs and cable TV? Australian Optus Vision offers to connect cable customer VCR to cable system using "RF combiner" for one-time fee of A$25 but there are limitations. Viewers can record one free to air channel and watch another, record free to air and watch cable-only channel, or record cable TV and watch free to air. Missing? Record one cable channel and watch another. Optus is using Jerrold (GI) ICFT-2000 addressable converter. Company literature to new subscribers says, "*From mid 1996 in selected areas, Optus will offer a complete telephone service; local , national and international. Now that you have Optus Vision you will be able to make the switch and benefit from competitively priced telephone calls. The network features the very latest technology, designed to meet you and your family's communication needs. Optus will offer a new state-of-the-art telephone and provide you with the high level of service and support you've come to expect from the Optus name.*" The subscription brochure also states: "*Optus Vision already brings a world of entertainment into your home. And very soon your advanced fibre-optic coaxial cable network will provide the opportunity to connect your computer to the world via Internet.*"

Malaysia's Mega TV, providing 5 channels of service via MMDS (HBO, CNN, ESPN, Discovery, Cartoon Network plus NHK news), must submit HBO movie tapes to government censors in advance of showing. Censors indicate objectionable scenes and language (no pigs on camera, no mouth to mouth kissing) and return tapes to Mega who returns them to HBO for re-editing. CNN news is delayed one full hour to allow government censors to review the topics and coverage content. In a nation with an 80% Muslim majority, business can be challenging. The ultra conservative state of Kelantan has outlawed amusement arcades, carnival rides and is toying with shutting down cinemas.

Digital cable set-top converters will finally go into production at General Instrument in August; one year after promised initial delivery. Boxes allow 6 programme channels to be compressed into single TV bandwidth channel. Boxes have maximum discount price of approximately US$233 each; GI hopes to ship 300,000 units during last five months of this year, as many as 2 million in 1997. Boxes alone are worthless; cable systems must also equip their headends with digital encoders to compress 6 programme services into single TV channel. Set top units designed by GI will work only with GI headend systems which makes commitment on part of cable operator a complex one going far beyond cost of consumer units.

TV5, Paris originated Anglofone French language service, has signed contract with Far North Cable TV Ltd. (Doubtless Bay) as its first Asia/Pacific cable affiliate. TV5 is transmitted 24 hours per day within the European Bouquet service package carried on AsiaSat 2 (TV5: Jim Hodgetts, Paris, 33-1-44-18-55-71). Far North had previously been the first Deutsche Welle cable affiliate in the Asia/Pacific region.

Canal Plus TV, France, has invested US$10m in TCI International. The two are partners in cable and satellite programming company in Europe. TCI International operates cable and related services outside of USA; in most recent financial quarter had profit of US$7m, a modest gain from prior year results.

Sports on cable (and satellite): European study shows number of television sport hours available in UK has climbed from 3,000 per year in 1989 to more than 12,000 in 1995. Recent pay per view Tyson/Bruno fight attracted 650,000 purchases

Bell-Atlantic parent of Telecom NZ and (New York telephone) Nynex merger could have some future side effects in New Zealand. Nynex has more mature cable operations division than Bell-Atlantic, could become major overseer of Telecom cable project in New Zealand as result.

British Telecom has reported market test results from Colchester region 5,000 home trial of video on demand (VOD). Test used compression technology and standard copper telephone wiring for "last mile" into test homes. BT does not say precisely what percentage of 5,000 homes used service (at all or weekly) but does report of those homes using the service, 20% did so 10 hours (or more) per week. Average home used service 5 hours per week and paid for privilege of doing so.

USA cable TV growth; latest statistics. 65.68% of all homes now have cable TV ; 78.34% of all cable homes also subscribe to optional pay TV services. In last 6 months new cable TV construction increased (in cable plant miles) by 3.8%. Largest operator is Tele-Communications, Inc. (TCI) with 13,000,000 subscribers, 262,750 miles of cable plant in place.

Cable network home viewing in USA has jumped again; up 5 percentage points in last year.

Terrestrial Broadcasting

Lifeway Ministries Trust telephone (09-425-6360) is now answered "Family Television Network." Does not a network require two or more stations?

TV3 network's 3.7m satellite antenna system installed for reception of Associated Press TV news feeds via AsiaSat 2 is to be replaced with 10m antenna. Station found low look angle signal from As2 marginal, often at critical times, and is installing larger dish to reduce or eliminate potential down times caused by atmospheric inversions (see SatFACTS Monthly April 15; p. 12). Competitor TVNZ has 9m dish installed for As2, presently uses it for several feeds including new to As2 Sky Australia horse racing which it receives on behalf of New Zealand TAB channel.

Sky Network has funded telephone survey of several remote regions in New Zealand to query interest in expansion of pay TV services into new areas. Survey asks, "*Would you be interested in 4 channels of Sky television at $599 installation fee and $11 per week?*" For those who responded in the negative, "*How about $199 installation and $14 per week plus $3 per week line charge?*" Sky has not announced the results.

Interactive Television Australia (ITA) hopes to negotiate deal with Seven Network to go with reported contract already held with Ten Net. Then the company will roll out 150,000 "black boxes" which will be given away to Australians through retail chain stores. Why? With the ITA "black box" connected in the TV set line, viewers can order goods through the box interconnection from home shopping channel services, obtain discount coupons that will be featured in parallel 7 and 10 advertising campaigns, recipes from cooking shows watched and a host of other "participatory" activities. System works by encoding special signals within vertical blanking interval of TV transmissions; box responds to signal and when viewer uses remote to "interact" with the offer on screen, the box takes over to handle the transaction. ITA benefits by being in the revenue stream for all materials ordered through the system.